

WHAT IS CLAIMED IS:

1. A method of ex vivo amplification of neonatal T cells comprising the steps of:
  - (a) obtaining light density mononuclear cells from a sample of umbilical cord blood; and
  - (b) stimulating T cell growth by incubating said light density mononuclear cells in a serum deprived culture medium comprising a combination of cytokines comprising stem cell factor and interleukin-7, thereby obtaining selective amplification of T cells.
2. The method of claim 1, wherein each of stem cell factor and interleukin-7 is at a concentration of about 10 ng/ml.
3. The method of claim 1, wherein said light density mononuclear cells are incubated in said serum deprived culture medium for up to 12 days.
4. The method of claim 1, wherein preferential amplification of CD4<sup>+</sup> over CD8<sup>+</sup> T cell subsets is obtained.
5. The method of claim 1, wherein said combination of cytokines further comprises interleukin-2.
6. The method of claim 2, wherein each of stem cell factor, interleukin-7 and interleukin-2 is at a concentration of about 10 ng/ml.
7. The method of claim 2, wherein said light density mononuclear cells are incubated in said serum deprived culture medium for up to 12 days.
8. The method of claim 2, wherein preferential amplification of CD8<sup>+</sup> over CD4<sup>+</sup> T cell subsets is obtained.